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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,916	01/31/2005	Satoru Tanaka	4105-45	7019

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EXAMINER	
LAMB, CHRISTOPHER RAY	
ART UNIT	**PAPER NUMBER**
2627	

DATE MAILED: 11/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/522,916	TANAKA ET AL.	
	Examiner	Art Unit	
	Christopher R. Lamb	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 September 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9-17,19-29 and 31-35* is/are pending in the application.

4a) Of the above claim(s) *33-35* is/are withdrawn from consideration.

5)☒ Claim(s) *1-7,19-29,31 and 32* is/are allowed.

6)☒ Claim(s) *10,12,14,16 and 17* is/are rejected.

7)☒ Claim(s) *9,11,13 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The species are as follows:

Species A: directed toward determining laser timing in accordance with a ratio between the pitch of the light interference pattern and the moving speed of the medium.

Species B: directed toward determining laser timing in accordance with a synchronous signal recorded on the medium.

Applicant is required, in reply to this action, to elect a single species to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

2. The claims are deemed to correspond to the species listed above in the following manner:

Claims 1-32: Species A

Claims 33-35: Species B

The following claim(s) are generic: none.

3. The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons: the common features of the two species (signal light, reference light, and pulse or shutter oscillation) are known in the prior art (for example, Itoh et al., cited in the prior Office Action), and therefore are not special technical features. The special technical features of the two species are independent methods of determining the laser timing and are disclosed in the specification as alternatives to one another.

4. During a telephone conversation with Michael Shea on November 16th, 2006 a provisional election was made without traverse to prosecute the invention of Species A, claims 1-32. Affirmation of this election must be made by applicant in replying to this Office action. Claims 33-35 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Objections

6. Claims 9, 11, 13, and 15 are objected to because of the following informalities:

Regarding claim 9:

In line 13, it refers to the light interference pattern "to be recorded," but this claim is directed toward a reproduction apparatus. This section should instead read "wherein the pulse width is determined in accordance width a ratio between a pitch of the recorded light interference pattern and a moving speed..."

Regarding claims 11, 13, and 15:

They are dependent on claim 9, and so contain the same objectionable language.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 10, 12, 14, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Itoh (US 2001/0017836).

Regarding claim 10:

Itoh discloses reproduction apparatus for reproducing information on the basis of a light interference pattern of at least two coherent lights recorded in the recording

medium as a spatial change of a refractive index (paragraph 42), the apparatus comprising:

a continuous oscillation laser for generating coherent light (paragraph 43);

a reference light optical system for introducing coherent reference light based on the coherent light to the recording medium (paragraph 47);

a photodetecting device for receiving diffraction light based on the reference light from the recording medium via an inverse Fourier Transform lens (paragraph 61);

an optical shutting device disposed in the reference light optical system for selectively passing or obstructing the reference light (paragraph 47); and

an optical shutter controlling device for controlling an open time and an open timing of the optical shutting device (paragraph 47),

wherein an area of the photodetecting device is selected in accordance with the open time of the optical shutting device (paragraph 61: the entire area is selected. This is "in accordance" with the open time because it is selected when the shutter is open).

Regarding claim 12:

Itoh discloses a moving device for changing a position of the recording medium relative to the position of the reference light (paragraph 46).

Regarding claim 14:

In Itoh the photodetecting device is a CCD device (paragraph 61).

Regarding claim 17:

In Itoh the optical shutting device is one of a phase modulating device and an amplitude modulating device (this is inherent, because it blocks or passes through the laser light according to the timing).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh.

Itoh discloses a recording/reproducing apparatus as discussed above.

Itoh does not disclose wherein the photodetecting device is a CMOS device (instead it is a CCD device).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have the photodetecting device be a CMOS device since the Examiner takes Official Notice that CMOS and CCD devices are used in the same environment, for the same purpose, and achieve the same result.

Allowable Subject Matter

11. Claims 1-7, 19-29, 31 and 32 are allowed.

12. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1:

Itoh in view of Kato, as cited in the previous Office Action, discloses most elements of this claim. However, Itoh in view of Kato does not disclose wherein the pulse width is determined in accordance with a ratio between a pitch of the light interference pattern to be recorded (that is, the spacing between the interference fringes in a given pattern) and a moving speed of the recording medium relative to the signal light and the reference light.

This element in combination with the other elements of the claim renders it allowable over the prior art of record.

Regarding claims 3 and 5:

They are dependent on claim 1.

Regarding claim 2:

Itoh, as cited in the previous Office Action, discloses most elements of this claim. In a similar manner to claim 1, however, Itoh does not disclose wherein the open time is adjusted in accordance with a ratio between a pitch of the light interference pattern (that is, the spacing between the interference fringes in a given pattern) to be recorded and a moving speed of the recording medium relative to the signal light and the reference light.

Regarding claims 4, 6, and 7:

They are dependent on claim 2, and are thus allowable.

Regarding claims 19, 20, and 31:

They contain language similar to one of claim 1 or 2, and are thus allowable.

Regarding claims 21-29:

They are dependent on claims 19 or 20, and are thus allowable.

Regarding claim 32:

The claimed ratio of pulse width and moving speed is a more specific recitation of the allowable language of claim 1; thus this claim is allowable.

Response to Arguments

13. Applicant's arguments, filed September 12th, 2006, with regards to claims 9-17 have been fully considered but they are not persuasive.

Regarding claims 9, 11, 13, and 15:

The language of the claims is similar to the allowable language of claim 1 – however, these claims are objected to as noted above, so they are not themselves in allowable form.

Regarding claims 10, 12, 14, 16, and 17:

Applicant argues that the amendment to claim 10 renders these claims allowable. The amendment requires that an area of the photodetecting device be selected in accordance with the open time of the optical shutting device

Itoh still meets this claim, in that the entire area of the photodetecting device is read (that is, selected) in accordance with the open time of the optical shutting device. This is described in paragraph 61: the photodetector is read when the reference light is incident on the fringes. Paragraph 47 describes the shutter that is used to control the reference light.

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Lamb whose telephone number is (572) 272-5264. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CRL 11/16/06

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